

Supplementary Table S1. Distribution of blood biomarkers across different groups

Variable		Q1 (n = 178)	Q2 (n = 157)	Q3 (n = 170)	P
Baseline	SBP	124.20 (15.11)	129.54 (19.56)	134.66 (14.95)	< 0.001*
	CREA	79.81 (9.92)	82.36 (9.91)	84.76 (8.63)	< 0.001*
	TC	4.59 (0.89)	4.47 (0.86)	4.78 (0.94)	0.010*
	TG	1.62 (1.10)	1.47 (1.10)	2.23 (2.28)	< 0.001*
	RBC	4.54 (0.51)	4.55 (0.45)	4.72 (0.35)	< 0.001*
	PLT	265.63 (70.26)	236.69 (58.29)	244.31 (47.56)	< 0.001*
Follow-up	SBP	126.45 (19.27)	130.14 (17.92)	135.86 (15.70)	< 0.001*
	CREA	86.17 (11.68)	91.97 (10.82)	96.98 (10.65)	< 0.001*
	TC	4.48 (0.86)	4.51 (0.81)	4.80 (0.88)	0.001*
	TG	1.66 (1.44)	1.64 (0.98)	2.10 (1.69)	0.004*
	RBC	4.57 (0.48)	4.48 (0.44)	4.62 (0.36)	0.014*
	PLT	214.42 (53.79)	197.16 (52.09)	201.14 (46.03)	0.006*

Note. SBP, Systolic Blood Pressure, reference range 90–140 mmHg; CREA, Creatinine, reference range 62–115 $\mu\text{mol/L}$ for men and 53–97 $\mu\text{mol/L}$ for women; TC, Total Cholesterol, reference range < 5.2 mmol/L; TG, Triglycerides, reference range < 1.7 mmol/L; RBC, Red Blood Cells, reference range 4.3×10^{12} – $5.8 \times 10^{12}/\text{L}$ for men and 3.8×10^{12} – $5.1 \times 10^{12}/\text{L}$ for women; PLT, Platelets, reference range 125×10^9 – $350 \times 10^9/\text{L}$. Intergroup comparisons were performed using one-way analysis of variance (ANOVA). *: Indicates a statistically significant difference.

Supplementary Table S2. Generalized estimating equation model results

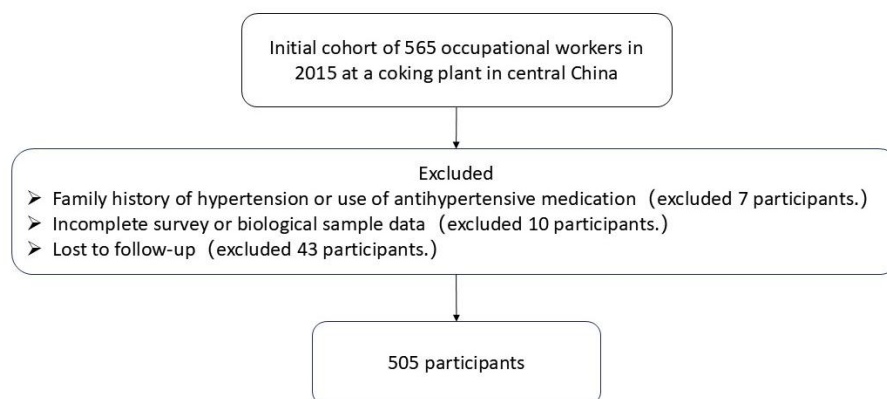
Characteristic	β (95%CI)	P
Q1	ref	
Q2	0.40 (0.11, 0.69)	0.007*
Q3	0.86 (0.55, 1.18)	< 0.001*
Baseline time	ref	
Follow-up time	0.36 (0.21, 0.51)	< 0.001*

Note. The generalized estimating equation (GEE) model was adjusted for gender, Smoking status, Alcohol status, Work duration, BMI, Education level. The number of participants in each group was as follows, Q1 = 178, Q2 = 157, Q3 = 170. *: The difference was statistically significant.

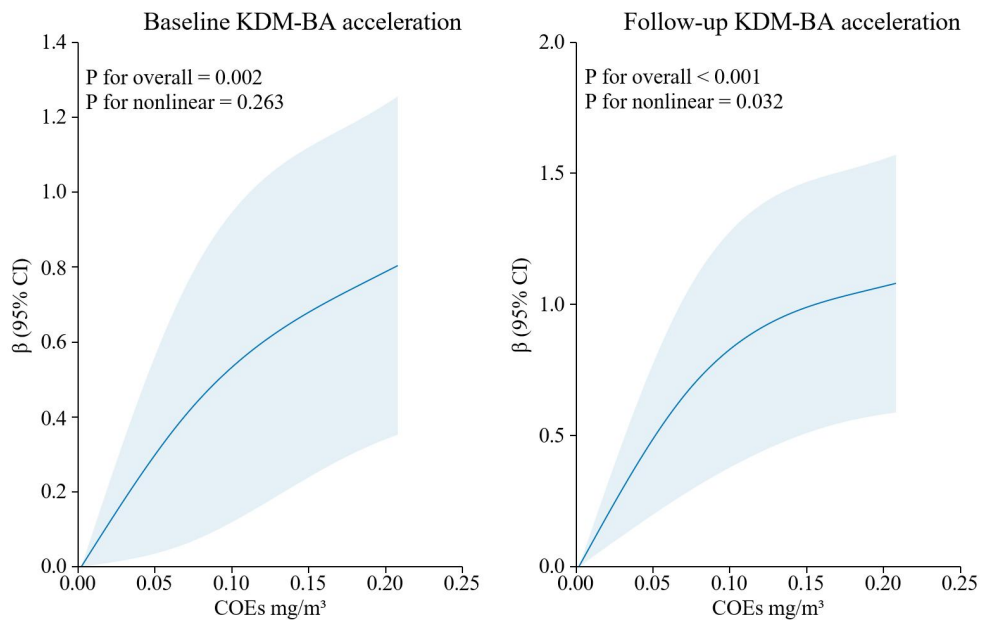
Supplementary Table S3. Sensitivity analysis of COE exposure and KDM-BA acceleration excluding workers with short or long tenure

KDM-BA	Group	β (95% CI)	P
Baseline KDM-BA acceleration	Q1	ref	
	Q2	0.37 (-0.07, 0.81)	0.100
	Q3	0.72 (0.27, 1.18)	0.002*
Follow-up KDM-BA acceleration	Q1	ref	
	Q2	0.56 (0.09, 1.04)	0.021*
	Q3	0.91 (0.43, 1.40)	< 0.001*
Δ KDM-BA acceleration	Q1	ref	
	Q2	0.09 (-0.35, 0.53)	0.682
	Q3	0.11 (-0.34, 0.56)	0.632

Note. The sensitivity analysis excluded participants with less than 5 years or more than 20 years of employment. The number of participants in each group was as follows, Q1 = 178, Q2 = 157, Q3 = 170. The model was adjusted for Gender, Smoking status, Alcohol status, Work duration, BMI, Education level. *: Indicates a statistically significant difference.



Supplementary Figure S1. Inclusion and exclusion criteria flow chart.



Supplementary Figure S2. Sensitivity analysis of COE exposure and KDM-BA acceleration (RCS plots) of participants with a 5- to 20-year work duration. COE, coke oven emission; KDM-BA, Klemera–Doubal method - Biological Age; RCS, restricted cubic splines. COEs, Coke Oven Emissions.